What is claimed is:

1. A method for illuminating an object comprising,

determining a nominal illumination angle for the object;

positioning a light source at an angle complimentary to the nominal illumination angle of the object.

2. A method as in claim 1 wherein the nominal illumination angle is empirically determined.

3. A method as in claim 1 wherein the nominal illumination angle is mathematically determined.

4. A method as in claim 1 wherein the light source is positioned to subtend less than the entire object.

5. A light source for a manufacturing inspection system, the light source for illuminating an object, wherein the object has a nontrivial bi-directional reflectance distribution function and includes a nominal illumination angle comprising:

a plurality of discrete light sources arranged in two dimensions and positioned at an angle complementary to the nominal illumination angle.

6. A light source as in claim 5 wherein the discrete light sources are LEDs.

7. A light source as in claim 6 wherein the LEDs are mounted to a flexible printed circuit board, and the circuit board is in the shape of a cone such that the plane of the cone is positioned an angle complementary to the nominal angle.

8. A light source as in claim 6 wherein the LEDs are mounted to at least two rigid circuit boards, the circuit boards being symmetrically positioned around the object at an angle complementary to the nominal angle.

9. A device for inspecting semiconductor devices, the semiconductor devices including a nontrivial bi-directional reflectance distribution function and including a nominal illumination angle, the device including a sensing element and a lens arrangement, the improvement comprising:

a two dimensional light source positioned at an angle complementary to the nominal illumination angle.

10. A device as in claim 9 wherein the light source is a two dimensional collection of LEDs.

11. A device as in claim 10 wherein the collection of LEDs is arranged as a cone.